

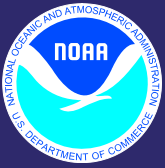
# **Hazardous Weather: Week of 16 November 2009**

**Continued threat of flooding, damaging winds, landslides and avalanches**

**Kirby Cook  
National Weather Service**

**17 November 2009**

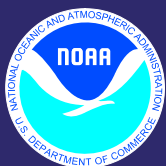




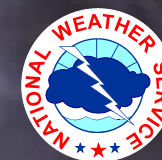
# Overview



- A series of strong Pacific frontal systems impacting Western Washington this week
  - *First one Sunday night*
  - *Second system Monday night*
  - *Somewhat of a break today*
  - *A third on Wednesday - Thursday*
- Impacts
  - *Heavy rainfall likely to resume again Wednesday evening into Thursday... mainly over the Olympics and North Cascades*
  - *Flooding remains a concern, most likely for Olympic Peninsula and North Cascades rivers through early Friday; concern for the Chehalis*
  - *Landslide threat has increased with precipitation earlier this week*
  - *Mountain snow for Cascades with renewed avalanche threat*
  - *Periods of strong, damaging winds remain possible across western Washington Wednesday afternoon/evening*



# Monday Summary



## OFFICIAL LOW LAND OBSERVATION SITES.

HOQUIAM AIRPORT 70 MPH  
BELLINGHAM AIRPORT 58 MPH  
NAS WHIDBEY 56 MPH  
EVERETT /PAINE FIELD/ 46 MPH  
QUILLAYUTE 46 MPH  
FRIDAY HARBOR 45 MPH  
BREMERTON 39 MPH  
EAST SOUND 39 MPH  
ARLINGTON 38 MPH  
SHELTON 38 MPH  
TACOMA INDUSTRIAL AIRPORT 38 MPH  
BOEING FIELD 36 MPH  
ENUMCLAW 36 MPH  
OLYMPIA 36 MPH  
SEA-TAC AIRPORT 36 MPH

## NATIONAL WEATHER SPOTTER REPORTS

VAIL 56 MPH  
ABERDEEN 53 MPH  
ANACORTIS 53 MPH

## MOUNTAIN OBSERVATIONS

CRYSTAL MOUNTAIN 115 MPH  
MOUNT BAKER 88 MPH  
ALPENTAL 57 MPH

## MARINE OBSERVATIONS

POINT WILSON 61 MPH  
TATOOSH ISLAND 61 MPH  
DESTRUCTION ISLAND 60 MPH  
ALKI POINT 55 MPH  
SMITH ISLAND 55 MPH  
POINT ROBINSON 54 MPH

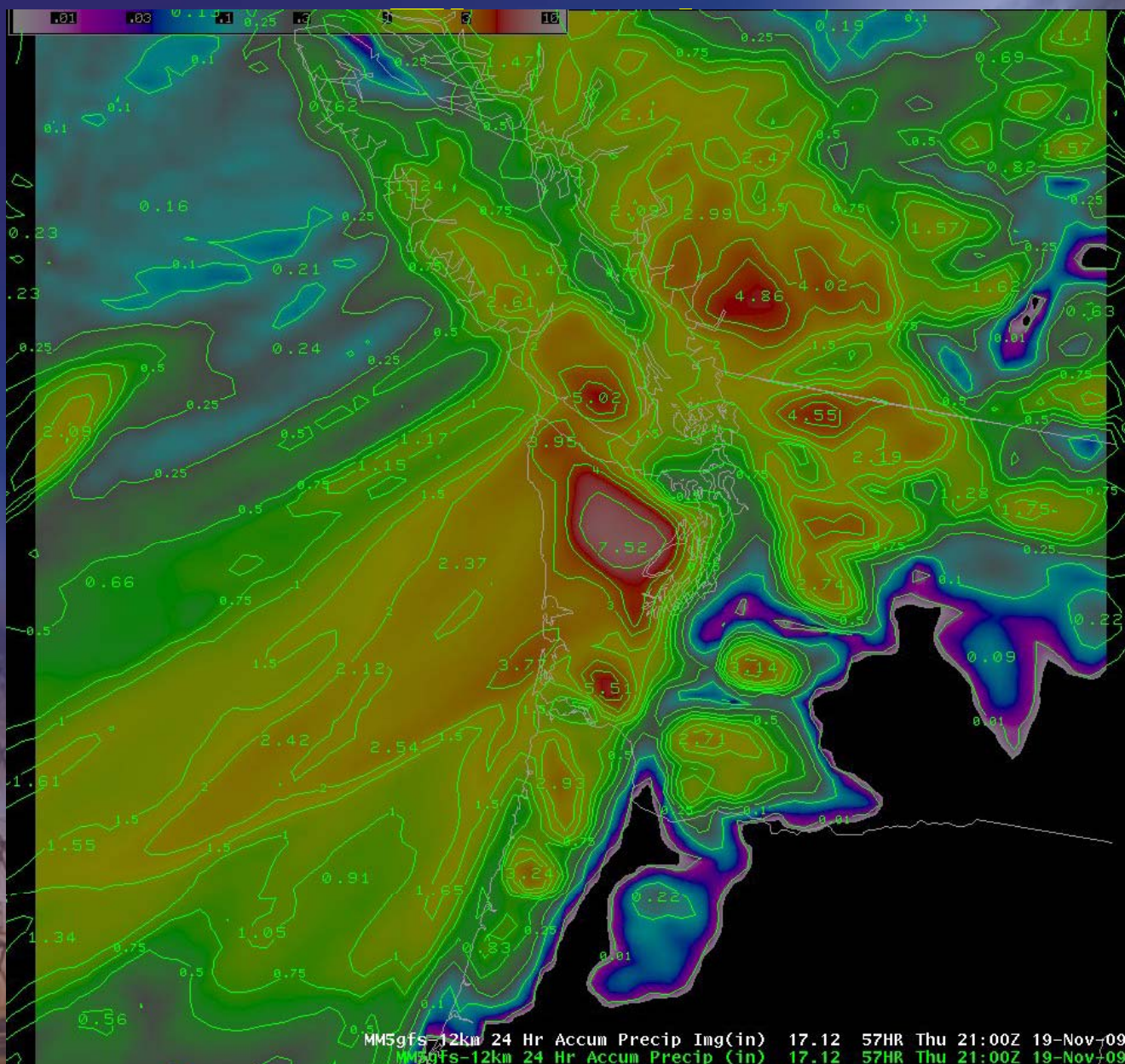
## TOP 10 24 HOUR RAINFALL TOTALS ENDING AT 6 AM TUESDAY MORNING

FRANCIS 6.00 INCHES  
VERLOT 5.70 INCHES  
MOUNT BAKER 5.06 INCHES  
CUSHMAN DAM 5.00 INCHES  
QUINAULT 4.35 INCHES  
QUILCENE 4.18 INCHES  
CRYSTAL MT 3.53 INCHES  
PORT ANGELES 2.95 INCHES  
SHELTON 2.95 INCHES  
HOQUIAM 2.69 INCHES



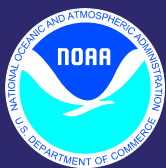


# 24 hr QPF Ending Midday

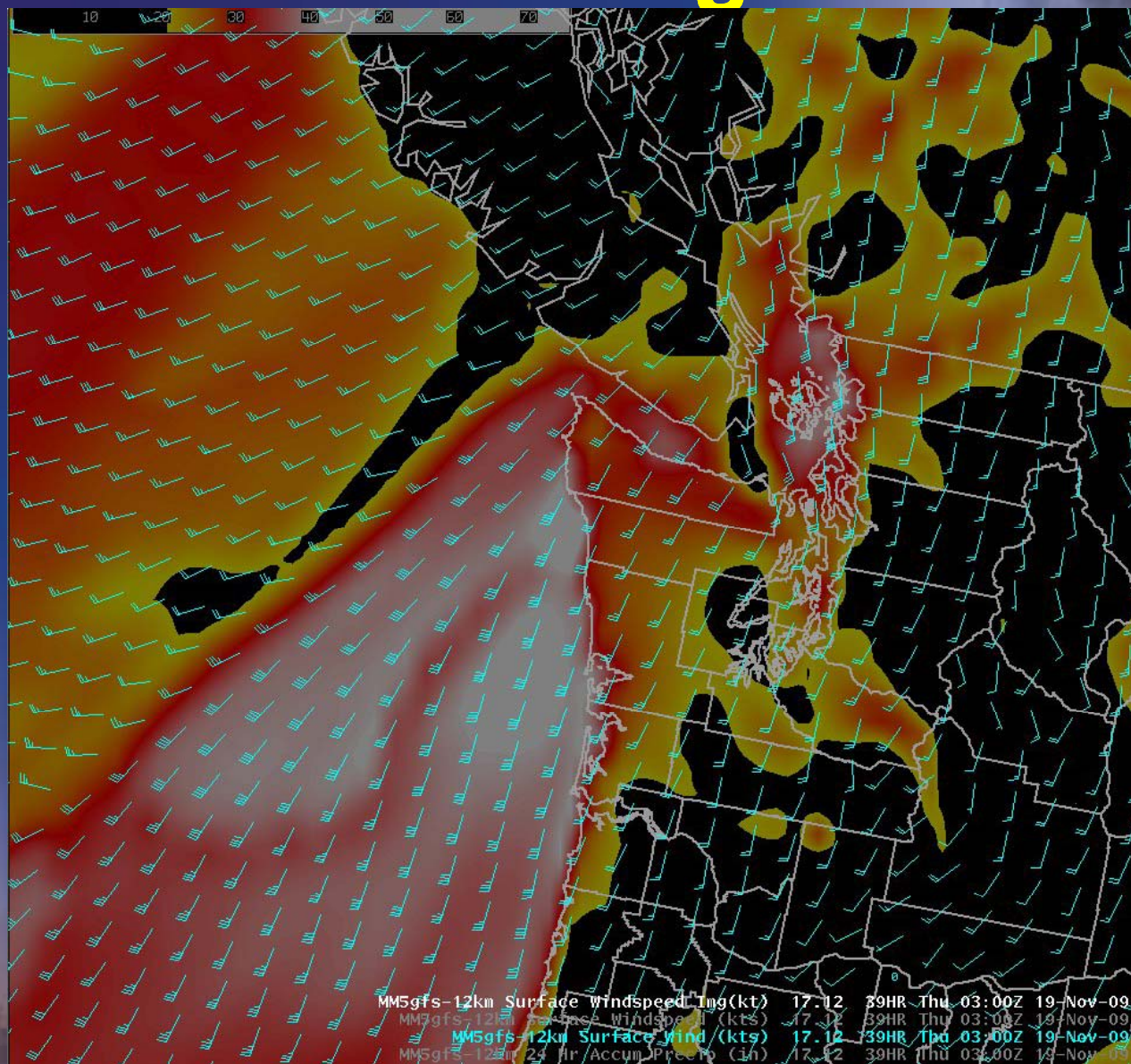


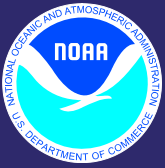
MMSgfs-12km 24 Hr Accum Precip (in) 17.12 57HR Thu 21:00Z 19-Nov-09  
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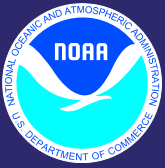
# Wind Snapshot Thursday Evening





# Precipitation Forecast

- **Rainfall amounts** – 24-hour totals ending midday Thursday
  - **Lowlands:**  $\frac{1}{2}$  to 1 inch
  - **Mountains:**
    - **Olympics** – 5 to 10 inches
    - **North Cascades** – 3 to 6 inches
    - **Central Cascades** – 1 to 3 inches
    - **Willapa Hills** – 3 to 6 inches
    - **Freezing Level** – 2000-3500 ft Cascades, 4000-5000 ft Olympics



# Flooding (past rain)



- **Warning**

- *Skokomish at Major flood*
- *Stillaguamish at Minor flood*
- *Satsop at Minor flood*

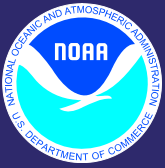
- **Watch**

- *Chehalis river*

- Current model forecast shows stage increasing through the rest of the week at lower sites (Cent and below)
- Peaking Wednesday morning and again at a higher level Friday morning.

- **Monitoring Snoqualmie**



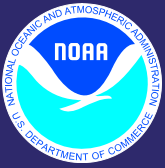


# Next Round of Flooding (Thursday-Friday)



- **Olympics**
  - *Skokomish*
  - *Satsop*
- **Southwest Interior**
  - *Chehalis*
  - *Newaukum*
- **Cascades**
  - *Little threat -- including the Green*

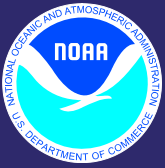




# Landslide Threat

- Isolated slides have already occurred
- Last couple of systems have helped the region exceed critical thresholds
- Additional heavy rain (~ 2 inches/24hrs) will heighten risk into the weekend

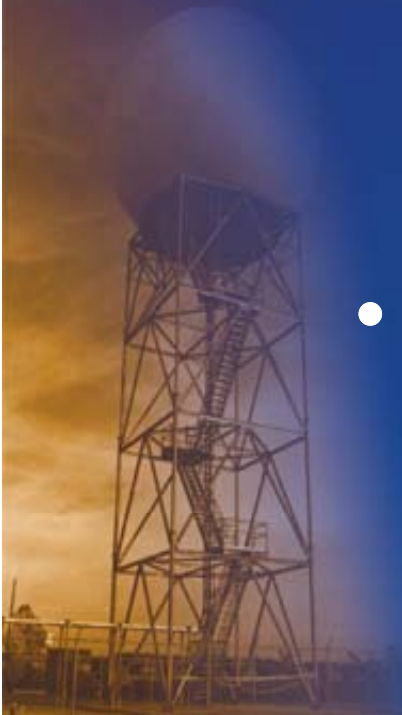


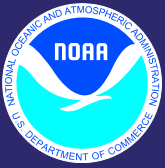


# Wind



- **Wednesday/Thursday event**
  - *Very similar to last two systems*
  - **Coast and North Interior (High Wind Watch)**
    - *40 mph sustained with gusts to 60 mph*
  - **Mountains**
    - *40 to 65 mph in exposed locations*

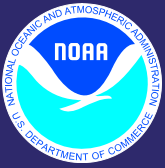




# Mountain Snow and Avalanche Danger

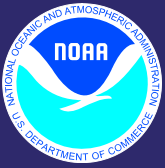
- **Winter storm watch for the Cascades (Wednesday afternoon)**
  - *1 to 3 feet over highest terrain, especially north*
- **Avalanche watch for North Cascades and Olympics**
  - *Heavy snow Wednesday and warm-up on Thursday*
- **Remainder Cascades**
  - *Risk increasing with additional snow*
  - *Precipitation will remain snow in the passes*





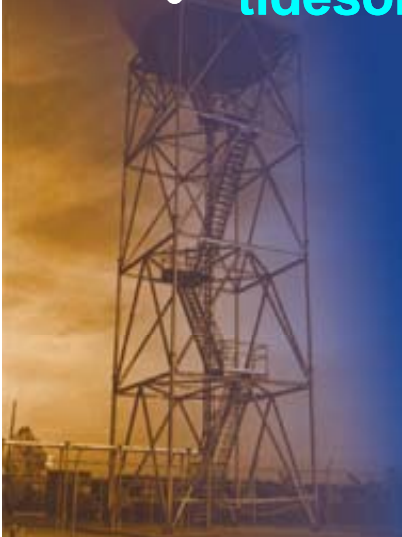
# Impact Summary

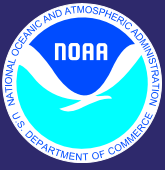
- **Wednesday into Thursday**
  - *Heavy Rain / Flooding*
  - *Landslide*
  - *Strong Damaging Winds*
  - *Avalanche Danger*
- **Another briefing tomorrow (time TBD)**
- **Stay Tuned !!**



# Resources

- [NWSChat](#) – Great tool to get quick personal help
- [weather.gov/seattle/](http://weather.gov/seattle/) – NWS Seattle web site
- [nwac.us](http://nwac.us) – Northwest Weather and Avalanche Center
- [wsdot.wa.gov](http://wsdot.wa.gov) – Washington State Dept. of Transportation
- [wwc.nrcs.usda.gov/snotel](http://wwc.nrcs.usda.gov/snotel) – Natural Resources Conservation Service (snow data)
- [tidesonline.com](http://tidesonline.com) – National Ocean Service tide data





# Questions

